

MORE NOTES ON FUNGUS INSECTS AND THEIR HOSTS.¹

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Recently, Dr. George W. Martin sent me several species of beetles which he had collected on fungi in the neighborhood of Iowa City, Iowa, and they proved to be *Hister lecontei* Mars., on *Mutinus elegans*, August 11 (probably not feeding on the fungus); *Mycetophagus punctatus* Say feeding on *Polyporus radicans*, August 11; *Mycotretus pulchra* Say on *Russula irrescens*, July 4; *Diaperis maculata* Oliv., on *Polyporus spraguei*, July and *Phenolia grossa* Fab., on *Polyporus sulphureus*, July 9.

In the Pennsylvania Department of Forestry Bulletin No. 12 (1915) Studhalter and Ruggles writing under the title, "Insects as Carriers of the Chestnut Blight Fungus" review the more important publications dealing with insects which have been considered accountable for the spread of fungi or bacteria which are saprophytic or parasitic upon plants and from their own observations, found that nineteen out of fifty-two insects collected in the field were carrying spores of *Endothia parasitica*. They concluded that some insects carried a large number of spores of the chestnut blight especially the beetle *Leptostylus macula*.

In the order Collembola, Folsom (Proc. U. S. Nat. Mus. vol. 50, p. 493) records *Achorutes armatus* Nic., as occurring commonly on agarics and on *Boletus*, *Polyporus*, *Morchella*, etc., and *Xenylla welchi* Folsom (Proc. U. S. Nat. Mus. vol. 50, p. 497) on mushroom beds in a greenhouse at Manhattan, Kansas. Alexander and McAtee (Proc. U. S. Nat. Mus. vol. 58, p. 413) state that *Limnobia triocellata* O. S., (Diptera, *Tipulidæ*) was reared from *Clytocybe* sp., and *Boletus felleus* on Plummer's Island.

Upon looking into the European literature for records of fungus insects one finds as in American literature, a general

¹For other papers on fungus insects see Proc. Biol. Soc. Washington, vol. 33 pp. 1-20; vol. 34, pp. 59-62; pp. 85-88; pp. 167-172; vol. 35, pp. 125-128; Canadian Ent., Sept. 1922, pp. 198-199; Sept. 1923, pp. 199-201; American Natural vol. 54, pp. 443-447.

absence of definite information concerning the specific identities of the hosts. In Calwer's *Kaferbuch* (1916) many species are recorded as occurring in "Locherpilzen, Wiedenschwammen, Blatterschwammen, Schleimpilzen, Buchenschwammen, Birnbaumschwammen, Staubpilzen, Schwammen, Pilzen," etc., which terms furnish little or no clue to the identity of the host. However some fifteen European species of beetles were coupled with definite host records and these are as follows:—*Agathidium seminulum* L., on *Trichia cinnaberina* (p. 289); *Saprinus lautus* Er., in faulendem *Agaricus* (p. 315); *Pocadius ferrugineus* F., in *Bovistus* (p. 439); *Mycetophagus atomarius* F., in *Sphaeria deusta* (p. 500); *Sphindus dubius* Gyll., larvæ in *Reticularia hortensis*, *Lycogala miniata* (p. 502); *Asphidiphorus orbiculatus* Gyll., in *Bovisten* (p. 502); *Cis boleti* F., in *Polyporus versicolor*, *Boletus* sp. (p. 504); *Cis rugulosus* Mell., in *Polyporus unicolor* (p. 504); *Cis micans* F., in *Lenzites betulinus* (p. 504); *Cicones variegatus* Hellw., on *Sphaeria deusta* (p. 513); *Endomychus coccineus* L., in *Bovisten* (p. 529); *Tetratoma Baudueri* Perr., in *Pleurotus ostreatus* (p. 771); *Hallomenus binotatus* Quens., in *Polyporus maximus* (p. 772); *H. axillaris* Ill., on *Lenzites quercicola* (p. 772); *Hypulus sericea* Sturn., in *Polyporus abietinus* (p. 775); *Diaperis boleti* L., in *Lentinus degener* (p. 807).